the past ten years or so. It is not a scientific society, or a Chamber of Commerce, or an educational association, but a national organisation in which the activities of all these bodies are united by the common bonds of scientific efficiency for the good of the State. While, therefore, the publication of the letter on the neglect of science is opportune and welcome, it seems unnecessary to form a "Reorganisation Committee," to which communications are to be addressed. The executive and other committees of the British Science Guild include leading representatives of all departments of pure and applied science, of many branches of commerce and industry, and of educational work from the primary school to the university. It is not unreasonable to suggest, therefore, that the new and anonymous Reorganisation Committee, which has secured the signatures to the recent statement, should exert its activities through the British Science Guild, instead of acting independently of the guild, and thus presenting a divided front to the forces to be overcome.

It is satisfactory to note that the White Paper [Cd. 8181] on British trade after the war, published last week, refers to the valuable work done by the guild with the object of promoting the manufacture of laboratory glassware in the country. Shortly after the outbreak of the war, the Technical Optics Committee took up the question of the supply of optical glass and instruments, and a committee was formed with the Association of Public School Science Masters to deal with the matter of laboratory glass. This committee found that glass manufacturers were disinclined to invest in new plant without some security against foreign competition after the war, but the difficulty was overcome by the guild sending a circular to more than a thousand schools and education authorities asking if they were prepared to undertake to use British-made glass during the war and for a period of three years after, provided that the prices were not prohibitive. The list of hundreds of schools and authorities which have given this general undertaking is published in the journal of the guild, just issued, and it should be of the greatest service to British manufacturers of laboratory glass. The same committee of the guild has rendered like valuable assistance by specifying the chief sizes and shapes of glassware required for laboratory purposes. These reports, and the enterprise of the Institute of Chemistry in determining and publishing formulæ for the manufacture of glasses of many kinds hitherto obtained mostly from abroad, have done more to give practical and scientific support to British glass manufacturers than any Government Department has accomplished since the outbreak of hostilities.

We give elsewhere the main points and recommendations of the recent White Paper, in so far as they relate to scientific matters. It is encouraging to find that the influence of scientific research upon industry, and the need for the State to make adequate provision for its promotion, are generously acknowledged. The nation has been ill-prepared against industrial expansion in the modern sense, and therefore it has found itself in an inferior position in times of war. The British manufacturer is now called upon to become an industrialist, and to co-operate with the scientific investigator in the promotion of industry as a whole. The British man of science must similarly cultivate a fuller interest in industrial applications, and appreciation of technical experience; and the change of attitude will act progressively both on science and industry. Finally, science should speak with a collective authority, and demonstrate by the conduct of its own affairs that it is capable of organised action and clear leading. We want to preserve the practical character of the British nation and yet to develop it to meet modern needs. That there can be successful organisation in manufacture is shown by the Ministry of Munitions; that the people can organise is proved by the position of the Trade Unions; that they can co-operate is evident from the success of the Co-operative Wholesale Society. It remains to develop still further the great principles—to organise and co-operate—among artisans, manufacturers, and scientific workers in order that our national capacities may be employed for the utmost good.

PSYCHOLOGY.

The New Psychiatry: being the Morrison Lectures delivered at the Royal College of Physicians of Edinburgh in March, 1915. By Dr. W. H. B. Stoddart. Pp. iv + 66. (London: Baillière Tindall, and Cox, 1915.) Price 2*s*. 6*d*. net.

IT is the accepted duty of this journal to recognise all interests in natural knowledge, and as problems of the mind are included in this group we may fittingly and appropriately refer to the above volume. Mental problems are not easy to solve, and the old methods of observation and induction—hitherto called psychological analysis—have of late given way to what has been described as "psycho-analysis," the assumed utility of the latter claiming for it a fresh title under the name of the "new psychiatry." Its author is Sigmund Freud, of Vienna, and one of its most brilliant exponents is K. Yung, of Zurich, who has lately tended to break away completely from the teachings and practice of the so-called "Freudian school." This school has few disciples among thoughtful and reflective men and women. In this country healthier conditions and a more natural and ethical view of life maintain, and we recognise that man is not an animal dominated by crude instinct and base passion, as the disciples of Freud maintain, but that he is a responsible being, fashioned after the image of God, and endowed with mental, spiritual, and physical attainments which can be proved by an experience not that of men of science only.

The causes, attributed by those whose lives are spent in the investigation of nervous and mental disorders to these pathological conditions, are observed chiefly in heredity, environment, education, fatigue, and various intoxications, whether these are generated within the body or introduced into it from without, the latter, for instance, being the poisons of alcohol, syphilis, tuberculosis, etc.; but the disturbing effects of strong emotion, grief, anxiety, and worry caused by any one specific event, such as a moral emotion, are also not excluded. Charcot, Hack Tuke, Savage, Janet, and many others have connected mental and nervous disorders with vivid emotional experiences, as also with the memories of these and with the conserved and revived ideas of such memories. It has been recognised that these memories may remain in the subconscious field, although capable of rising into the conscious mind under certain normal and abnormal conditions. It is the claim of the disciples of Freud that they can by "psycho-analysis" disclose the workings of this unconscious mind through the examination of spontaneously uttered thoughts, *i.e.*, "free-association," and that all conscious thought and action are coloured and influenced by the unconscious ones, which, indeed, are looked upon as the springs of action of all conscious ideas, which implies that the unconscious mind is the primitive soil out of which all conscious thoughts originate, and out of which all intellectual processes grow. Freud considers the conscious active mind of thought, feeling, and will to be a commingling of the unconscious and the conscious, in which the lower level supplies the motive force, whilst the upper regulates it. Thus there are many mental states which may be packed together in the mind at one time, though one or more of them may be repressed; as Bergson states, they may be compressed like steam in a boiler, so they may not rise to the conscious level of expression.

It is within the knowledge of every practising physician that certain sensations or experiences are able to determine certain attitudes of mind which may appear after their memories have faded, and the hypothesis that the memories of past experiences are potential agencies in determining certain abnormal mental symptoms is also an acknowledged fact. The teachings of Freud have certainly tended to elucidate many facts in the unconscious field. He maintains, for instance, that in the education of children many incidents are remembered, although more are forgotten; yet they remain engraved upon the marble of the unconscious mind. He cites the trend of social and ethical education to be mainly in the direction of repressing natural tendencies, suppressing feelings and passions, personal wishes and sentiments, which is thus a constant effort for the learning pupil, but which it succeeds eventually in more or less completely controlling. These tendencies, so repressed, may at any time become uppermost, and then give rise to wishes, longings, delusions, unfulfilled desires, dreams, or obsessions.

Dr. Stoddart's lectures are an eloquent brief for this Freudian school, and if his advocacy had ended here we should have been satisfied, interested, and gratified; but he carries his support to the extreme limit of Freudian disgust, and some parts of the lectures are unwarrantable, painful, and unjustifiable. Freud and Dr. Stoddart both believe that there is an unwillingness to recall or evoke painful feelings, that these are kept under by an assumed ego, the "endo-psychic censor," or, more briefly, the "Censor"—a purely artificial inhibiting factor. Lapses of memory, which cause us not to do things we wish to do and intend to do, drop out of the mind owing to their lack of interest, and not owing to the working of an active and repressive force. It is claimed for Freudism that a solution is obtained to the problems of grammar, language, literature, art, and religion, and this ambitious aspiration we should willingly have passed by; but because the purpose of psycho-analysis is to discover some unpleasantly painful or shameful event in the past history of the patient, because these are taken to be the root cause of most cases of mental perversion, and because sexual matters are placed as the bed-rock of most cases of insanity—a hypothesis which is not only unjustifiable and unproven, but is also an insult to the clean mind of an innocent sufferer—we are compelled to remonstrate. The method of psycho-analysis practised by this school of the "new psychiatry" has been responsible for suggesting lewd, objectionable, and bestial thoughts to a pure mind, and such practices should be repressed with all the strength of a controlling hierarchy—if such there be? It has been well said that "a diagnosis in the Freudian sense is a diagnosis of the mind that made it."

In Dr. Stoddart's lectures there is much that concerns the psychiatric specialist, as he is interested in all the attempted explanations of perversion, but there is little here for the scientific seeker after truth. The first chapter deals with fundamental psychical instincts; the second with the technique of psycho-analysis; and the last with its application. We are not in sympathy with much that is said by Freud's English exponent, and we assert from practical experience and a definite knowledge of the effect of psycho-analysis upon those among whom the craft is practised—in so far as it is a probing for hidden and forgotten sexual occurrences—that it is repulsive, disreputable, and ethically objectionable.

ROBERT ARMSTRONG-JONES.

THE ENERGY CHANGES IN VITAL PROCESSES.

Principles of General Physiology. By Prof. W. M. Bayliss. Pp. xx+850. (London: Longmans, Green and Co., 1915.) Price 21*s.* **net.**

WITHIN recent years many workers in the domain of physiology have made use of the more modern physical and chemical methods in their investigations, as is evident even from the most cursory study of present-day physiological and bio-chemical literature. Such a book, therefore, as that which Dr. Bayliss has just given us is of inestimable value to all who recognise that an approach to the study of physiology through the avenue of energetics is one that is bound to prove of great value. To deal satisfactorily with the principles of general physiology from this viewpoint requires, however, the expenditure of so much labour that at first sight it appears unlikely that one writer can take the whole burden upon his own shoulders. Dr. Bayliss has taken infinite pains in the preparation of a well-reasoned presentation of the physico-chemical laws which govern vital processes. Every page shows evidence of a critical study of the literature, much of which, at least until recently, lay outside the region of the physiologist. One of the great advantages which will result from a careful study of this book will undoubtedly be the direction of the attention of the reader to the physico-chemical literature of which the writer has made such good use.

The first chapter deals with certain of the properties of protoplasm, but naturally in a very brief form, as the subject is discussed from a variety of points of view in the subsequent chapters. The next seven chapters, along with chapter x., are in many respects the most valuable. They deal with such subjects as the laws of energetics, surface action, the colloidal state, permeability of membranes, osmotic pressure, the action of electrolytes, and catalysis and enzyme action. In the very interesting chapter on surface action, the properties of substances at their boundaries with other phases, for example, surface tension and electric charge, and their influence on solubility and chemical reaction, are dealt with before taking up the subject of adsorption. The parts played by mechanical surface energy and the electrical energy changes at a surface are carefully differentiated, and in the study of the combined effects of the two factors, the higher value of the latter is referred to. The changes subsequent to adsorption, removal from surface to interior or actual chemical combination, and the control of the rate of chemical combination by the preliminary adsorption process, are dealt with in a most interesting fashion. The section on the electrical charge on colloids and the part played by electrolytic dissociation on the same is, as one would expect, a most excellent one. That most important subject in colloidal chemistry, namely, the action of electrolytes on colloidal particles, receives due attention, the work of Hardy, Perrin, Burton, and Mines being specially referred to.

In dealing with the proteins from the physico-chemical point of view, it might have been advisable to give a rather more detailed account of amphoteric electrolytes in order to lead up to such subjects as the iso-electric point or zone and its relation to the denaturation or coagulation zone.

In the chapter on the permeability of membranes and the properties of the surface of cells, a very excellent account is given of our present knowledge, but the subject requires so much further work that the time has not yet come when a clear account of the various factors, physical and chemical, can be given. In the chapter on osmotic pressure, and also later on in the chapter on secretion, the writer refers to the influence which would be exercised by differences in permeability in various parts of the cell membrane; for example, the surface next the blood vessels compared to the surface next the lumen of the tube. A somewhat similar mechanism has been described by Lepeschin in certain organs of plants.

The chapter on electrolytes and their action is a most interesting one, but it would be advisable for the reader to supplement it by a study of a